

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/IB2005/000225

International filing date (day/month/year)
31.01.2005

Priority date (day/month/year)
13.02.2004

International Patent Classification (IPC) or both national classification and IPC
F01P3/20, F01P7/16, B60K6/04, F02D13/06, F02D17/02, F02B75/22

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

10/584856

International application No.
PCT/IB2005/000225

IP20 Rec'd PCT/PTO 28 JUN 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/000225

Box No. V Reasoned statement under Rule 43*b*/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	1-12
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

PCT/IB2005/000225

Re Item V.

- 1 Reference is made to the following document:
D1 : PATENT ABSTRACTS OF JAPAN vol. 2000, no. 06, 22 September
2000 (2000-09-22) & JP 2000 073763 A (NISSAN MOTOR CO LTD), 7 March
2000 (2000-03-07)
- 2 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document) a cooling system A,B,C used in a hybrid vehicle with the following features:
 - it includes an internal combustion engine 1, 2 a drive mechanism (drive motor 3) and a drive circuit 4;
 - it comprises a first cooling system A, which includes a first cooling device (radiator 5);
 - the cooling medium that has been cooled by the first cooling device (radiator 5) is delivered to the drive mechanism 3, then to the engine (cylinder head 1) and returned to the first cooling device (radiator 5).
 - a second cooling system C includes a second cooling device (radiator 8) which cools down a drive circuit 4.

From this, the subject-matter of independent claim 1 differs in that:

a part of the cooling medium delivered from the first cooling device is cooled by the second cooling device and then returned to the first cooling system through the drive circuit.

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)

The problem to be solved by the present invention may be regarded as:

to allow the operation of the drive circuit at a lower temperature as the one of engine and electric motor, using a small size radiator.

- 2.2 The solution to this problem proposed in claim 1 of the present application is not suggested by the available state of art, thus is considered as involving an inventive step (Article 33(3) PCT).
- 2.3 Claims 2-12 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII.

Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate.

The vague and imprecise statement in the description on page 14 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them.